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RECORD OF GEOGRAPHICAL PROGRESS.

NORTH AMERICA.

THE SEAL FISHERIES.—Dr. David Starr Jordan, President of the Commission in charge of the fur seal investigations of our Government, returned from the Pribilof Islands on Aug. 25. He had spent some weeks at the breeding grounds with Mr. Macoun, the Canadian Commissioner, and Prof. Thompson, the British representative. Dr. Jordan is reported to say that there has been a shrinkage of about 15 per cent. in the number of animals on the breeding grounds since last year, while the seals on the hunting grounds have decreased about one-third in number. The decline in the herd is thus more marked this year than last, which is due to the vigorous resumption of pelagic sealing in Bering Sea. It is made very clear that the decrease of the herd is not due to the loss of the seals killed on land for their fur, but to the destruction of seal life on the high seas, where at least four-fifths of all the animals killed by pelagic sealers are females, which are not only pregnant but also leave their young to die on the islands, so that the death of the mother destroys three lives.

According to Mr. Herman Liebes, one of the lessees of the seal rookeries on the Pribilof Islands, the annual catch by pelagic sealers, since 1890, has amounted to an average of 88,916 as compared with an average of 15,770 killed on the islands. The branding of young female seals was begun in the summer of 1896, and the branded cows which returned to the islands this year showed clearly the permanency of the mark and its efficiency in rendering the skin unsaleable. Branding was continued last summer and this expedient may to some extent diminish the cupidity of the pelagic seal hunters.

POLITICS IN SCIENTIFIC WORK.—The Director of the Geological Survey of Missouri, a most competent man who has long pushed the work of the Survey with vigor, ably adapting the scientific results to the development of the economic resources of the State, has recently been removed from office. His efficiency had not been questioned, and no reason for his removal appears except that the positions occupied by himself and his subordinates were wanted for others in order to discharge political debts. The Survey is now in charge of men who are said, on good authority, to have no special fitness for their new duties. The *Journal of Geology* remarks that "if the appointees are as obviously incompetent as information indicates, they are simply consuming the funds of the State to no purpose save their own, and we think an effort should be made to procure a formal declaration of the courts whether this is not a virtual embezzlement and, if so, to secure the award of the proper punishment."

The disastrous results of political intermeddling with our national scientific bureaux have more than once been demonstrated. It is not so very long ago that Dr. Mendenhall, the Director of the Coast and Geodetic Survey, was compelled to resign and his valuable services were thereafter lost to the country at large. It was thought necessary, last winter, to appoint a committee to inquire into the present condition of the Survey. The report of the committee has been made, and it is not to be made public; but according to the Washington *Star*, a new Director of the Survey will be appointed and scientific and executive fitness instead of political considerations will govern the selection of the new man.

SURVEYING THE GOLD RESOURCES OF ALASKA.—The bill appropriating $5,000 for the continuation of the survey of the gold resources of Alaska passed Congress so late in the last session that it was impossible to send out a party this year. The work will, however, be continued next year under the direction of Mr. J. E. Spurr, who conducted the Survey in 1896. In view of the greatly increased interest in the Yukon region, it is proposed to ask Congress, next winter, to appropriate the sum of $25,000 so that a complete survey, that will supply data for a good geological map, may be carried out.

ASCENT OF MT. ST. ELIA'S.—Only newspaper reports are yet at hand of the ascent by Prince Luigi of Savoy, of Mt. St. Elias, but the fact may be recorded here that he and one or two members of his party reached the summit at noon on July 31 last and, according to the Prince's determination of the height, it is 18,120 feet. The expedition reported that while nearing the mountain, it met the party of Mr. Bryant, of Philadelphia, which had ascended to the height attained by Prof. Russell in 1891, 14,500 feet, and was then compelled, by illness, to return.

FUTURE OF CHICAGO AND DETROIT.—Prof. G. K. Gilbert and Dr. J. W. Spencer seem to have determined by joint investigations that the earth's surface around the great lakes is sinking at the rate of nearly an inch in ten years. The result will be, according to these authorities, that in a few centuries Chicago and Detroit will be flooded; within 1,000 years water will flow freely from Lake Michigan into the Mississippi, and within 3,000 years Niagara will be dry and the St. Lawrence will drain only the Lake Ontario basin. These startling conclusions were presented to the geologists of the American Association at the Detroit meeting.

GEOGRAPHY AT THE BRITISH ASSOCIATION.—In quantity and quality the papers in the Geographical Section at Toronto were considerably above the average. The papers by Prof. Davis of Harvard, on geography in the Universities, and by Prof. Dodge of New York, on geography in the common schools, showed that progress is making, and there is every reason to hope that in the near future the subject will have the place in schools and Universities which it deserves. The report of the committee which is collecting information as to the climate of tropical Africa, Col. Bailey's paper on forestry in India, Dr. Mill's on the classification of geography, Prof. Milne's on submarine changes, Mr. Newell's on the hydrography of the United States, Prof. Moore's on the Climatology of the United States, Prince Kropotkin's on the direction of lines of structure in Eurasia, and Prof. Penck's on Potamology (river geography) were excellent examples of geographical research. Among other interesting papers were Mr. Selous's account of the resources of Matabeleland and Mashonaland and Mr. Klotz's on the boundary survey in Alaska, showing the efficiency of the camera in regions where the plane table and theodolite cannot be used.

THE UNITED STATES COAST AND GEODETIC SURVEY.—*Science* says (Vol. VI, No. 142) that the survey of the trans-continental Arc, which was begun by the Coast and Geodetic Survey in 1871, has just been completed by the direct chain of triangulation from Washington to Cape May, thus replacing the older and less reliable work by way of Delaware Bay. The oblique arc from Maine to Mobile was also completed. These two works mark an era in American geodesy and contribute new and valuable information as to the size and shape of the earth. During the fiscal year ending June 30, 1897, the work of the Survey was widely distributed and covered localities on the Atlantic, Gulf, and Pacific coasts, including Alaska. Thirty land parties and ten sea parties were on duty during the year. The land parties completed the new topographical survey of the shores of Buzzard's Bay, Mass.; nearly finished that of San Francisco Harbor and Bay; determined chronometrically the longitudes of Unalaska and Kadiak Islands, Alaska, and telegraphic longitudes in Massachusetts, New York, and Washington; made a new survey of the Pribilof Islands, Bering Sea; determined the declination, dip and horizontal intensity (the magnetic elements) in nine Western States, principally in California, Montana, North and South Dakota and Nebraska; measured base lines at Salt Lake City and in Kansas; the hydrography, topography and triangulation of Lake Pontchartrain, Louisiana; connected the Gulf and Atlantic coast triangulation across Florida from Fernandina to Cedar Keys, and the longitude station at Montreal with primary triangulation in New England; connected the Los Angeles base line in California with the existing triangulation and arranged for carrying a scheme of trigonometrical figures northward; settled topography on Long Island; precise levelling in Kansas and Mississippi; triangulation at the mouth of Chesapeake Bay; topography and triangulation at the mouth of the Patapsco River and on the Chester River, Maryland; besides the work already mentioned of completing the trans-continental Arc and the oblique arc along the Appalachian chain from Maine to Mobile.

The parties on vessels were engaged in hydrographic work on the New England Coast, Chesapeake Bay, San Francisco Bay and Alaska; special surveys in Long Island Sound and on the outer bar at Brunswick, Ga.; examination of Savannah River and Elizabeth River entrances; and surveys of Lake Pontchartrain, Louisiana, and Brazos River, Texas.

The original scheme of primary, telegraphic longitudes has now been completed and the definitive values of the standard longitudes of the United States have been deduced. Both commercial and strategic interests have been served by the work of the past fiscal year. The surveys in San Francisco, Chesapeake and Buzzard's bays are all in the interest of national defence, while the determination of the longitude of Unalaska and Kadiak islands furnishes a check for all vessels bound from Sitka to the Yukon's mouth.

LECTURES ON THE GEOGRAPHY OF THE UNITED STATES.—The geography teachers of New York City and the neighborhood will have an opportunity, this fall, to attend the free lectures to teachers which are to be given by Prof. R. E. Dodge at the Teachers College, on Saturdays, at 10.30 A.M., from Oct. 2 to Dec. 11 (omitting Nov. 27). The course has not been planned with reference to any particular grade, but the aim will be to give, in a simple way, useable facts in geography and history capable of application by an interested teacher.

The course will open with a brief consideration of the origin and meaning of land forms, and the relation of man thereto, with particular reference to New York City. Beginning then with New England and the Atlantic Slope, the lecturer will sketch the geography of the different regions of our country, and at the same time give the principal relations of history to the geographical features. As many practical suggestions and references for reading as possible will be given, and the lectures will be extensively illustrated by lantern slides, maps, models, etc. Directions will also be given for procuring illustrative material, with estimates of cost. No tickets will be required.

SOUTH AMERICA.

EXPLORATION IN SOUTH AMERICA.—In his recent address as President of the Section on Geography of the British Association Dr. J. Scott Keltie said that there is really more room now for the pioneer explorer in South America than there is in Central Africa. Our knowledge is fairly satisfactory along the great river courses, but the immense areas, often forest-clad, lying between the rivers, are almost entirely unknown. In the area between Punta Arenas and the Rio Negro, Patagonia, there is still much to learn, while on the west coast, with its innumerable fiord-like inlets, its islands and peninsulas, there is a fine field for the geologist and physical geographer. Systematic exploration is wanted throughout the whole range of the Andes. There is an enormous area lying to the east of the Northern Andes and including the eastern slopes, embracing the eastern half of Ecuador and Colombia, Southern Venezuela and much of the country lying between that and Northern Bolivia, of which our knowledge is very scanty. Even the country lying between the Rio Negro and the Atlantic is but little known. Great areas in Brazil and in the Northern Chaco have only been partially described, such as the region in Matto Grosso, where the streams forming the Tapajos and the Paraguay rise. In short, South America affords a wider and richer field for exploration than any other continent.

MR. FITZ GERALD'S EXPLORATIONS IN THE ANDES.—*The Geographical Journal* (July, 1897) says that when Mr. Fitz Gerald wrote home on May 3, from a point south-east of Mount Aconcagua, he expected to be back in London early in September. He was making satisfactory progress in his mountain explorations. He thinks from his triangulation and levelling work that the altitudes hitherto given to the Andes peaks will have to be considerably reduced. He has found some interesting glaciers and, he thinks, a new and active volcano to the south of Mt. Tupungato. The latter peak is certainly volcanic, as much pumice and volcanic stones were found on the summit and elsewhere, but these conditions do not exist at Aconcagua and, in fact, there seems to be no volcano near it. He had completed his instrumental survey of Aconcagua and the surrounding valleys.

POPULATION OF RUSSIA.—Prince Kropotkin draws some interesting geographical conclusions from the recent census in Russia (*Geographical Journal*, August, 1897). The population of European Russia proper is now 94,188,750, while the population of all the rest of the Empire is 35,022,363. Large changes have taken place in the distribution of the population of European Russia within the past forty-six years. In some of the provinces having a meagre clay or sandy soil, the increase was as low as 35 per cent., while in the provinces on the Black Sea the average increase was 165 per cent., and even rose to 207 per cent. in Kherson. The permanent increase, however, while important, is not so large as these figures seem to indicate, as the census was taken in winter when hundreds of thousands of peasants wander towards the large towns, or the fertile prairies north and south, in search of work.

A fact of great importance is that the centre of gravity of the population of European Russia has been shifted within fifty years southwards towards the Black Sea. A hundred, and even fifty years ago, the chief bulk of the population was in Central Russia around Moscow; there was at the same time another centre of dense and numerous population south-west of Kiev. Now, while the population of Central Russia has been increasing very slowly that of the southern parts of the country has doubled, and nearly trebled. In South Russia there has been a great development of home-made agricultural machinery, and on the fertile "black earth" prairies is the densest agricultural population and the largest number of populous towns, all of recent growth. With the exception of St. Petersburg and Riga, all towns having more than 75,000 inhabitants are now south of Moscow, and the entire development of many of these towns has taken place within the past half century. Then the Baltic Sea is losing more and more of its importance for Russia, while the Black Sea and the Caspian are acquiring proportional importance. This is the great fact brought into prominence by the census. In other words, the part of the Russian plateau which slopes towards the Black Sea, the Sea of Azov and the depression on the northern coast of the Caspian has attracted two-thirds of the whole population of European Russia.

Poland is the most densely peopled part of the Empire. Its population has nearly doubled since 1851, and kept increasing at this high rate during years when the rate of increase in some other parts of Russia considerably diminished. This rapid increase is explained by a good climate, a perfect soil, absence of the droughts that sometimes afflict South-Eastern Russia, the rapid growth of industry and partly, also, by German agricultural immigration. Siberia and the Kirghiz steppes are being rapidly colonized by Russian emigrants. The province of Tobolsk is now thoroughly Russian, and even in the Pacific Coast provinces of the Amur, the Maritime Province and Sakhalin, there are 350,000 inhabitants, almost entirely Russians.

GREAT BRITAIN'S COAL AND IRON.—An article in *Nature* (Aug. 26, 1897) gives some facts to show that British coal and iron are not holding their own. While Great Britain, in 1840, produced 75 per cent. of the world's supply of coal, it now produces only 34 per cent. "Atlantic liners no longer carry coal from Great Britain for the return journey; they now take in American coal, and 1,500,000 tons of American coal were thus consumed in 1895." The condition of iron manufacturing always exercises an important influence on the production of coal, so that a large demand for iron makes a large demand for coal. In twenty-five years the world's production of pig-iron has increased from 12,000,000 to 26,000,000 tons; but the share taken by Great Britain has fallen from 48.8 per cent. to 29 per cent., while that of the United States has increased from 14.1 per cent. to 26.2 per cent.; that of Germany from 11.4 per cent. to 21.4 per cent., and that of Russia from 3 per cent. to 4.7 per cent. Iron is now being imported from the United States into Great Britain.

ASIA.

DR. SVEN HEDIN RETURNS TO EUROPE.—After nearly four years' absence in Central Asia, his routes extending clear across that region from Russian Turkistan to Mongolia, Dr. Sven Hedin has returned to Sweden. His work in Asia is of high scientific value, and will rank among the most notable achievements of explorers in recent years. He is about to receive the gold medal of the Russian Geographical Society, and he will be similarly honored by the Royal Geographical Society, before which he will soon read a paper on the general results of his travels. He is now writing a popular account of his work, and the scientific results will be published a little later. Among the most notable features of his fruitful labors are his investigations of the climate, topography, geology and glaciers of the Pamirs; crossing of the dreaded Takhla-Makan desert, between the Yarkand and the Khotan rivers, never before attempted, where Dr. Hedin barely escaped with his life, no water being found during thirteen days' march among the high sand-dunes; tracing the Keria River to the place where the last vestige of it is lost in the sands; the probable solution of the problem relating to Lob Nor; discovery of the remains of old buried cities in the desert south of the Tarim; and the mapping of the intricate Tarim River system.

THE POLAR REGIONS.

THE SEVENTH PEARY EXPEDITION TO NORTHWEST GREENLAND.—The steamer *Hope* arrived at Sydney, C. B., on Sept. 20, with the party of R. E. Peary, C. E., U. S. N., on board, all well. The summer in Arctic waters was unusually stormy, but there was less than the usual quantity of ice. The results of Mr. Peary's last journey to northwest Greenland were very successful. He brought back the large Cape York meteorite, the largest yet discovered, and this city will doubtless be its final repository. Six Cape York Eskimos, with their tents, sledges, dogs and canoes, also came with the explorer. He found the Eskimos of the Smith Sound region eager to serve under him in the work of exploration to the north of Greenland, which he will begin next year. He made his first visit to Cape Sabine at the southern entrance to Smith Sound. The scientific parties that went north with him were distributed at their various destinations and were taken on board again when the *Hope* returned south. They were able to carry on researches of value, and the results of their work will be described later. Mr. Peary made all the preliminary arrangements required in northwest Greenland for the important scheme of exploration on which he will embark next season, and which may occupy him for several years.

THE BELGIAN ANTARCTIC EXPEDITION.—The expedition commanded by Captain Gerlache sailed from Antwerp on Aug. 16 on the specially fitted steamer *Belgica.* Dr. F. A. Cook, surgeon of the first Peary Expedition to northwest Greenland, has sailed for Rio de Janeiro to join the expedition. The object of the expedition is to survey as thoroughly as possible the shores of Antarctica from Graham's Land to Enderby Land, Wilkes Land and Victoria

Land. If possible, the party will land, during the next Antarctic summer, at Cape Adare in Victoria Land, and it is provided with sledges and ski for the exploration of the ice-cap. Captain Gerlache and Lieutenant Danco studied the art of ski travelling in Norway last winter. The expedition has with it the frame of a dwelling house which will be erected at Cape Adare, if that point is reached, provisioned for two years and left in charge of Captain Gerlache, Lieutenant Danco and a number of men. The steamer is also provisioned for two years, but will winter at Melbourne, unless caught in the ice.

AFRICA.

THE WORK OF THE BOTTEGO EXPEDITION.—The Italian Geographical Society issued on Sept. 10 a statement of the geographical results of the ill-fated Bottego Expedition to Galla Land, and the south-eastern part of the Nile basin. On March 16th last, the party was surrounded by hostile Gallas and of the eighty-six members of the expedition, sixty-six, including Captain Bottego, the leader, were killed. The survivors were made prisoners, and, after many hardships, were delivered to King Menelek and handed over to the Italians. Fortunately, most of the documents of the expedition were saved, and from the summary of the exploratory results that has come to us from Rome, it seems that the discoveries were among the most important achieved by African explorers in recent years. The routes covered about 3,700 miles of travel of which about one-half were through regions hitherto unknown to explorers. These new routes included a survey of the entire west coast of Lake Rudolf which had not been previously visited; and the exploration of the upper basin of the Sobat River, the large right tributary of the Nile, whose upper course has been wholly unknown though, in 1876, Dr. Junker ascended it from its mouth for a distance of 185 miles.

The most interesting discovery was the solution of the vexed question of the destination of the large Omo River, which rises in the mountains on the southern border of Shoa. It is announced that Bottego fully identified this river with the Nianam, proving, therefore, that it flows into the north end of Lake Rudolf. For years the lower course of the Omo has been the subject of much speculation by geographers and by explorers who did not succeed in solving the problem in the field. Captain Cecchi championed the idea that the Omo finally turned to the east and sent its waters down the Jub River to the Indian Ocean. Then Borelli followed the Omo down to 6° 20′ N. latitude where, on native information, he gave the river a westerly and then a southerly direction, and the natives told him it emptied into Shamburu Lake. Then Teleki and Von Höhnel discovered the large Lake Rudolf, which they said must be identical with Borelli's Shamburu. They found the Nianam flowing into the lake, and from what the natives told them they believed it to be the Omo. There were other theories also, M. d'Abbadie, for instance, suggesting that the Omo's course was westward to the White Nile, while Prof. P. Gilbert advanced the supposition that the river flowed far south to the Victoria Nyanza, though Stanley had not found any large river entering that lake on the east side.

Dr. Donaldson Smith, in his expedition of 1894–95, ascended the Nianam for about one hundred miles, and was confident that it had its origin about twenty miles further north among the mountains. He accordingly pinned his faith to the supposition that the Omo was the upper course of the Jub, or, at least a tributary of that river. This was the last word on the subject until the present positive announcement that the Nianam is the lower course of the Omo. It is noteworthy that Dr. Hassenstein, in his map recording the results of the Donaldson Smith expedition (*Petermanns Mitteilungen*, 1897, No. 1), did not accept Dr. Smith's theory of the source of the Nianam, but represented it as the lower part of the Omo with a hypothetical course to the east of Smith's mountain barrier.

The Bottego expedition also discovered a large lake, Sagade, which they renamed Regina Margherita and which forms, with Lake Abaya, visited by Dr. Smith, a large land-locked basin. It is hoped that the material that has reached Italy will be adequate for the proper mapping of the discoveries made.